Small Business Innovation Research/Small Business Tech Transfer

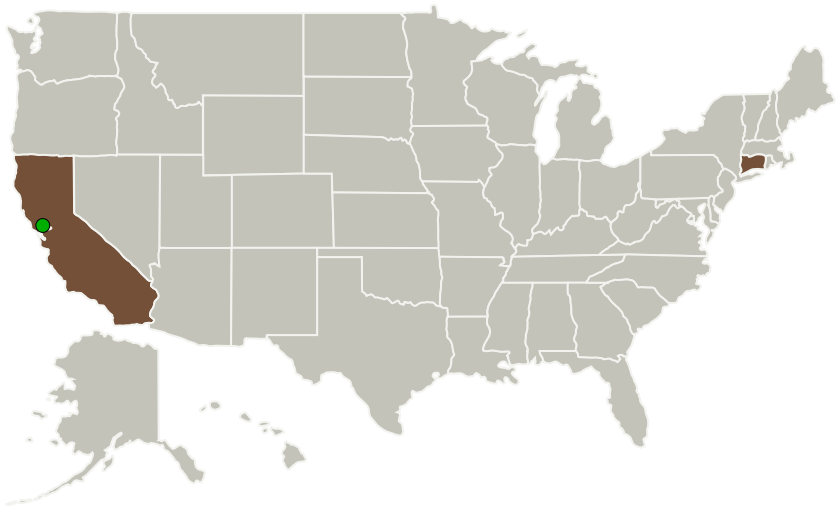
Low Gravity Drug Stability Analyzer, Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

The overall goal of this proposed program (through Phase III) is to build a space-worthy Drug Stability Analyzer that can determine the extent of drug degradation. It will be able to monitor the drug active pharmaceutical ingredient (API) and its degradation product concentrations as a function of time, as well as determine if a drug is suitable for use (likely based on the presence of 90% or more of the original API concentration). This will be accomplished by designing and building a rugged, small, light weight, low power, easy to use analyzer with appropriate software, which can identify and quantify API and degradation products with little or no sample handling in 1 minute. Feasibility will be demonstrated during Phase I by successfully measuring acetaminophen, azithromycin, epinephrine, lidocaine, and their degradation products at percent level concentrations. The overall goal of the Phase II program is to build a working prototype Drug Stability Analyzer that is suitable for space deployment (e.g. aboard the ISS) and capable of monitoring drug degradation. The ability of the analyzer to nondestructively quantify the amount of the API and the degradation products, would also allow assessing drug potency at the time of use to ensure crewmember safety. The Drug Stability Analyzer will be transitioned from a Technology Readiness Level 3 to a 7 (ground tested) from the beginning to the end of the program.

Primary U.S. Work Locations and Key Partners



Low Gravity Drug Stability Analyzer

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Organizations Performing Work	Role	Type	Location
Real-Time Analyzers, Inc.	Lead Organization	Industry	Middletown, Connecticut
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Connecticut

Project Transitions

May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140389)*

Images

Project Image
Low Gravity Drug Stability Analyzer *(https://techport.nasa.gov/image/134979)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Real-Time Analyzers, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Stuart Farquharson

Co-Investigator:
Stuart Farquharson

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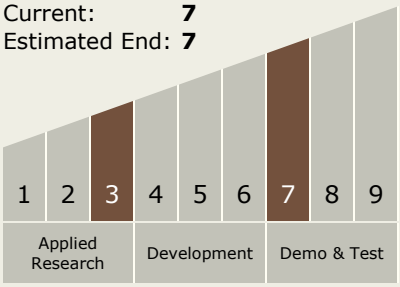
Technology Maturity (TRL)

Start: **3**
Current: **7**
Estimated End: **7**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.1 Medical Diagnosis and Prognosis

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System